Medical students' attitudes towards and beliefs about dyslexia: a single-centre survey study

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Medical Students' Attitudes towards and Beliefs about Dyslexia: A Single-Centre Survey Study

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Dyslexia impacts upon reading and writing, but not upon intelligence. Little research has explored dyslexia in medicine. An online questionnaire was emailed to all medical students within a single medical school, inviting them to participate. Results were analysed using descriptive statistics. Statistical significance was calculated for any differences between gender, age group, or year-group cohorts. 123 individuals responded. Most reported a good understanding of dyslexia, and feelings that their peers with it should be supported. However, a minority reported feelings of jealously, and dissatisfaction – feeling that students with dyslexia should not be supported, as this gives them an unfair advantage. In some, this seemed to stem from a belief that dyslexia were not real, or that their peers were "faking it".

"I think it is a poor excuse for students to be favoured advantageously and receive tremendous benefits. It is certainly not a medical problem."

Keywords: Dyslexia, Medical students, Medical school, Medical education, Mixed methods, Survey, Cross-sectional

1. Introduction

Rose (2009) and the British Dyslexia Association (2019) define dyslexia as "a learning difficulty that primarily affects the skills involved in accurate and fluent word reading and spelling." They also acknowledge that "dyslexia occurs across the range of intellectual abilities" and that "it is best thought of as a continuum, not a distinct category, and there are no clear cut-off points" (British Dyslexia Association, 2019). Dyslexia encompasses a wide variety of difficulties/weaknesses, which include but are not limited to "difficulties in phonological awareness, verbal memory and verbal processing speed" (Rose, 2009). It is classed as a Specific Learning Difficulty (SpLD) and is thought to have a 10% prevalence in the United Kingdom (UK) (Siegel, 2006; Walker & Shaw, 2018). Dyslexia International (N.d.) estimates that its worldwide prevalence is also approximately 10%.

There is a drive in contemporary medical education to train a workforce that represents the populations it

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serves. There has therefore been an increasing focus on equity and widening access to medical education (British Medical Association, 2020). "By supporting widening participation in medicine, we are also ensuring that the NHS [National Health Service] is reflective and understanding of the needs of its patients in the future" (British Medical Association, 2020). Thus, individuals with SpLDs should be welcomed into the health professions. Around the World one can also find various examples of protective legislation for individuals with disabilities. For example, in the UK the Equality Act (Great Britain, 2010) promotes equity. Other examples of protective legislation include the Americans with Disabilities Act (1990) and the Australian Disability Discrimination Act (1992) (Crouch, 2019). Following the introduction of the Equality Act in 2010, UK educational providers and employers are required to make 'reasonable adjustments' to working/educational environments to enable individuals with disabilities – including dyslexia and other SpLDs – to perform their roles without undue disadvantage (Great Britain, 2010). There is however no direct guidance on what a 'reasonable adjustment' might be. This raises some questions. What may constitute 'reasonable'? Could 'reasonable adjustments' be perceived as unfair by those who do not receive them? And might they cause the individuals with SpLDs to stand out and thus, potentially, become targets for bullying? For example, by providing separate exam rooms for learners with dyslexia. Therefore, whilst the introduction of the Equality Act was indeed a positive step for those with diverse learning/work needs, it may not present us with the perfect solution. Furthermore, in some countries there are concerns around Individuals obtaining fake diagnoses to benefit from positive discrimination and supports (Singh, 2018).

This study forms part of a programme of research into the impacts of dyslexia on medical education and clinical practice from SS and JA. A systematic review highlighted three studies, which compared the exam scores of medical students with and without dyslexia – and the impacts of compensations such as extra time (Gibson & Leinster, 2011; McKendree & Snowling, 2011; Ricketts, Brice, & Coombes, 2010; Shaw, Malik, & Anderson, 2017). This found that, whilst medical students may struggle in their early years, they can perform on par with their non-dyslexic peers when special adjustments were in place (Shaw et al., 2017). An autoethnographic study also explored SS's experiences as a medical student with dyslexia – highlighting several potential issues, including social isolation and segregation from his peers (Shaw, Anderson, & Grant, 2016). This was then built upon by an interpretive phenomenological study of the experiences of medical students and junior doctors with dyslexia (Shaw & Anderson, 2017, 2018). This highlighted the heavy emotional burdens carried by those with the condition, along with potential bullying from peers (Shaw & Anderson, 2017, 2018). Participants also reported difficulties regarding practical exams, in which support is difficult to offer medical students with dyslexia (MSWD) (Shaw & Anderson, 2018). These findings led to the development of a survey to try to quantify, for the first time, the experiences of medical students and junior doctors with dyslexia (Anderson & Shaw, 2020). This study found that 24% of participants reported being bullied about their dyslexia by their peers at medical school, and 25% reported being bullied about their dyslexia by their peers whilst working as junior doctors (Anderson & Shaw, 2020). Reports of bullying such as this are frequent within medicine. For example, the General Medical Council research "the state of play of medical education and practice in the UK" annually, including issues relating to the wellbeing of doctors. Their 2019 report found that "negative cultures enable unprofessional behaviour, such as bullying, harassment and discrimination, with consequences for doctors' wellbeing" (General Medical Council, 2019). They go on to explain that "in a survey carried out in 2018, the BMA [British Medical Association] found that two-fifths of doctors felt bullying and harassment were a problem in their workplace" (General Medical Council, 2019).

These issues are not limited to medical education. Major & Tetley (2019a) found that some registered nurses with dyslexia discussed negative experiences from the wider public, including teachers in their younger lives: *"I was told by teachers that I would stack shelves for the rest of my life, that I would never amount to anything because I wasn't clever enough"* (Major & Tetley, 2019a). One of their participants reported judgment from an educational psychologist due to their high academic attainment: *"I think she was questioning both my dyslexia and my ability; then she started to question my qualifications"* (Major & Tetley, 2019a). In another paper, Major and Tetley found that some nurses with dyslexia reported negative experiences with other nursing colleagues in clinical settings (Major & Tetley, 2019b):

"These included staff discussing how nurses who have dyslexia were unsafe and should not be allowed, being treated as if they were stupid, other staff not believing that the nurse had dyslexia or others disclosing that they had dyslexia too" (Major & Tetley, 2019b).

The current study was designed to fill an important knowledge gap. We became increasingly aware that no study had investigated the views of medical students *without* dyslexia about dyslexia and MSWD. Was the previously reported "bullying" intended as such? Could these interactions have stemmed from a lack of understanding? Or from views passed down from medical educators? There were many unanswered questions. As such, this study was conceptualised. The aims of this study were fourfold. We aimed to investigate:

1. The knowledge of non-dyslexic medical students about dyslexia and MSWD.
2. The attitudes of non-dyslexic medical students towards MSWD.
3. The behaviours of non-dyslexic medical students towards MSWD; and
4. Non-dyslexic medical students' views on the compensations (reasonable adjustments) provided to MSWD in the UK under the Equality Act (Great Britain, 2010).

2. Methods

2.1 Conception and Design

We felt that there was sufficient data from the previous qualitative work (Shaw & Anderson, 2017, 2018; Shaw et al., 2016) to be able to develop a questionnaire to explore our aims. This study took the form a single-centre, cross-sectional survey using an online platform – SurveyMonkey™. This platform was chosen due to its ease of use, familiarity to our target participants, and the ease of data analysis. The questions used were generated by LH and JA, based upon the findings from the previous qualitative studies. The questions included sections about knowledge of dyslexia, views about supports provided for MSWD, and behaviours towards MSWD. The questionnaire also contained free comment boxes – allowing for richer qualitative data to be obtained, to grant the researchers a greater understanding of the participants' attitudes and beliefs. Once the construction of the online survey was complete, it was piloted by LH to assess functionality, accessibility, and face validity. The survey was reviewed by our institutional ethics committee, who approved the questionnaire for use in the survey.

2.2 Ethical Review

The Brighton and Sussex Medical School Research Governance and Ethics Committee approved this study.

2.3 Sampling and Data Collection

A letter explaining the purpose of the survey, enclosing a link to the online questionnaire was emailed to all medical students studying within a single UK medical school – spanning all five year-group cohorts – inviting them to participate *if they did not have dyslexia themselves*. The first page of the survey was a Participant Information Sheet. Participants were required to confirm their agreement to take part on this page before progressing onto the main survey. A reminder email was sent out to all students after two months to maximise response rates.

2.4 Data Analysis

A scrutiny of all completed questionnaires was undertaken to check that they had been fully completed. The raw data were then descriptively analysed using the SurveyMonkey™ inbuilt facilities for this. Participants skipping questions were omitted from the analyses of those questions. Data were then analysed by the following categorical variables: gender, age group, and year-group cohorts. Statistical significance was calculated using SPSS for any observed differences using Pearson's Chi-square test and the Mantel-Haenszel test of linear-by-linear association where appropriate (Field, 2009; IBM Support, N.d.). Data were analysed and verified independently by SS and JA in order to reduce the risk of error or bias.

3. Results

3.1 Participant Demographics

A total of 123 individuals responded to the survey – 67% (82) female and 33% (40) male. Twenty-three percent (28) were from 1st year, 19% (23) were from 2nd year, 18% (22) were from 3rd year, 29% (35) were from 4th year, and 11% (14) were from 5th year students. Forty-six percent (56) were aged 17-21, 43% (53) were aged 22-26 and 11% (13) were aged 27 or over.

3.2 Understanding Dyslexia

Most (94%, 116) reported personally knowing someone with dyslexia. Almost all (97%, 118) participants indicated that they knew what dyslexia was. However, their free comments showed some variability in their understanding:

> *"I think people often misunderstand dyslexia and do not recognise that different people with the condition have different abilities just like everyone else has. They may take more time to process information, but their actual intellectual ability can still be excellent."*

> *"It is a condition of unknown aetiology which is characterised by difficulty spelling or reading words. I think it's cureable in the sense that if you work extra hard to remember spelling and practice reading you can overcome any difficulties."*

> *"I think it is a poor excuse for students to be favoured advantageously and receive tremendous benefits. It is certainly not a medical problem."*

"It's a learning difficulty related to reading writing and spelling, it can variably affect people's day to day lives so should be taken seriously."

3.3 Supports and Their Perceived Fairness

All participants were aware that MSWD might receive extra time for written exams, and 95% (115) thought this was fair.

"I think it's about equality and allowing them the time to understand the questions and write a response because they struggle with it more."

"… In some cases, I do think it is fair, but in 'real life' circumstances such as an emergency department, there would be no extra time."

"To a degree, in written exams I think a little bit of extra time is fair (although sometimes it seems excessive). Its practical exams I think extra time is unfair as one of the points of the exam if working under time pressure"

"Absolutely not [fair]. A dying patient will not give you extra time because you can't spell properly."

Table 1: Supports and their perceived fairness

Were you aware that someone with a diagnosis of dyslexia might be given an extra allowance of time in written exams?		
	Yes	No
	100% (n=123)	0% (n=0)
Do you think this is fair?		
	Yes	No
	95% (n=115)	5% (n=6)
Were you aware that someone with a diagnosis of dyslexia may receive other support such as special computer software, etc.?		
	Yes	No
	98% (n=120)	2% (n=3)
Do you think this is fair?		
	Yes	No
	91% (n=111)	9% (n=11)

In addition, 98% (120) were aware that MSWD might receive other supports – special computer software, for example – and 91% (111) thought this was fair. A minority (9%, 11), however, felt that the provision of wider supports for MSWD was unfair:

"Some of my peers received hundreds of pounds of benefits such as smart pens, laptops and free printing. How is this fair?"

"Bit ridiculous."

There was a significant association between year-group and the percentage who believed that provision of extra supports was unfair. This varied from 0% in year 1 to 21% in year 5 (P=0.008).

3.4 Exploitation, "faking it", and Bullying

Overall, 29% (36) thought that someone who said they were dyslexic might be faking it, and 44% (54) felt that someone who said they were dyslexic might be exaggerating it or exploiting it unfairly. Comments included:

"Some people fake it to get extra time and a laptop!"

"Why would you fake being less mentally able."

"… I have heard that it would be easy to cheat the test if you wanted to."

"I suspect it is quite hard to fake true dyslexia on a dyslexia test."

Seven percent (9) reported witnessing MSWD being picked upon or bullied in medical school. In addition, 3% (4) reported that they themselves had picked upon or bullied MSWD at medical school.

Table 2: exploitation, "faking it", and bullying

Have you ever felt that someone who says they are dyslexic is faking it?		
	Yes	No
	29% (n=36)	71% (n=87)
Have you ever felt that someone who says they are dyslexic is exaggerating it or exploiting it unfairly?		
	Yes	No
	44% (n=54)	56% (n=69)
Have you ever witnessed anyone with dyslexia being picked upon or bullied in medical school?		
	Yes	No
	7% (n=9)	93% (n=114)
Do you think that you might have picked upon or bullied anyone with dyslexia in medical school?		
	Yes	No
	3% (n=4)	97% (n=118)

3.5 Witnessing Comments Regarding MSWD

When asked about witnessing people making positive or negative comments directly to MSWD, 50% (61) of participants had witnessed a negative comment compared to 35% (44) who had witnessed a positive one. Also, 49% (60) had witnessed a negative comment made in private about MSWD, compared to 31% (38) who had heard a positive one.

Table 3: Witnessing comments regarding MSWD

Have you ever witnessed anyone saying something positive or negative/derogatory to someone with dyslexia about their dyslexia?				
	Positive comments only	Negative comments only	Both positive and negative comments	Neither
	3% (n=4)	17% (n=21)	33% (n=40)	47% (n=58)
Have you ever witnessed anyone saying something positive or negative/derogatory about someone with dyslexia to their friends or classmates in private?				
	Positive comments only	Negative comments only	Both positive and negative comments	Neither
	1% (n=1)	19% (n=23)	30% (n=37)	50% (n=62)

Females were more likely to have heard no comments of any kind made to MSWD about their dyslexia (54%, 44) than males were (35%, 14). Males were more likely to have heard a negative comment made to MSWD about their dyslexia (60%, 24) than females were (44%, 36). Fifty-eight percent (23) of males had heard a negative comment being made in private about MSWD compared to 44% (36) of females. These differences were not statistically significant. Comments on this included:

> *"I have seen various cases of people with dyslexia being told they are definitely faking it and abusing the system because their results are too good."*

> *"Quote from someone: 'dyslexia is not a real thing. It is just an excuse for stupidity.'"*

> *"People make fun of them for being dumb and slow."*

> *"Medical students tend to be very accepting generally."*

3.6 Other Issues

Participants were given the opportunity to add any other comments. Most (60%, 74) did not comment. Some, however, commented that dyslexia "does not exist" or that it is unfair that MSWD receive extra help. Such comments included:

> *"No such thing as dyslexia 50 years ago, excuse for extra privilege."*

> *"I've spent my whole life competing again(st) people with dyslexia who receive massive advantages that aren't fair and certainly aren't realistic."*

Some who commented spoke about the medical school environment not being appropriate for MSWD, as well as others (including peers) lacking understanding of dyslexia. These comments included:

> *"That a lack of knowledge on the full scale of abilities that can be affected is a probable factor towards misunderstandings about dyslexia."*

"Dyslexic students should be protected. I feel that having 'dyslexia' stamped on your file just labels you for abuse/discrimination further down the line rather than highlighting a student in need of support."

4. Discussion

This single-centre survey explored medical students' knowledge and understanding of dyslexia, and their behaviours towards MSWD – thus presenting the case of a single UK medical school. Within the study there were small disparities within the percentages of males and females answers to questions, which were not statistically significant. Males were more likely to report having heard a negative comment and think someone had exaggerated their dyslexia. These results need further study to determine if there is a true difference.

As the year of study of participants increased it can be clearly seen that there is an associated increase in the belief that the extra help (e.g. computer software) received by MSWD was unfair. Interestingly, there was no such trend regarding their views on the provision of extra time in written exams. This may be since, as students' journey through medical school progresses, the work being undertaken increases in difficulty. Therefore, those without the supportive software start to perceive that they could be helped by it and subsequently determine that it is unfair that MSWD receive it for free. This trend could also be explained by financial changes. As students' progress through medical school they have less holiday and so less time for a job and money to be earned. Therefore, comments such as: *"As a low income student it can be frustrating when I have to work all through summer to pay for a laptop which is needed for work or had to spend all my time using library ones within the library never in the comfort of my house and some students get it for free,"* are made more frequently – potentially due to financial situations becoming tighter.

Half of our participants had heard negative comments about someone with dyslexia either in general or in private. One explanation for this could be that medical professionals are unaware of the positive aspects of dyslexia. This may indicate that more education is required for both staff and students to reduce the number of negative comments. Our previous studies of medical students' and doctors' experiences have also reported negative interactions (Shaw & Anderson, 2017, 2018; Anderson & Shaw, 2020). For example, *"peers can think that you are not working hard or are stupid when you are unable to remember things. It can also make people feel that you don't care if you don't remember what they have said"* (Anderson & Shaw, 2020). Or "*I remember someone saying to me 'oh you should just have cod liver oil tablets' ... The thing is, they obviously did not believe it is a real thing... It was really upsetting, honestly*" (Shaw & Anderson, 2018). Such experiences are also not unique to medical education. Ridley (2011) found that nursing students with dyslexia were living in "fear of ridicule and discrimination." Furthermore, Morris & Turnbull highlighted the following experience from a student nurse: *"I've listened to nurses talking disrespectfully about others because they are slow. If they knew I was dyslexic, they would talk about me behind my back"* (Morris & Turnbull, 2006). This is again supported by the papers from Major and Tetley (2019a; 2019b) on registered nurses with dyslexia. Whilst our findings represent the case of a single UK medical school, they add further, important data to this on-going discussion and raise further questions: Why do some medical students feel that MSWD have an unfair advantage? Are we adequately educating medical students about individuals with diverse learning needs, such as those with dyslexia? Do

the reported negative comments about/towards MSWD persist after graduation and entry into the working world as doctors?

A disturbing thought is that individuals who publicly express negative feelings or beliefs about MSWD, may be likely to express these thoughts strongly and be more influential in the student body. This might account for the discrepancy in the reported experiences of MSWD and the reported behaviours in medical students without dyslexia. It is possible that our participants may have been more sympathetic towards MSWD than those who did not take part.

4.1 Limitations

Although the response rate was relatively high for a survey of students, sending another reminder might have increased the number of responses. This was a single-centre study, which limits its national and international generalisability. It is, however, a first step which may provide us with potentially transferable insights for other settings. Further research in multiple centres, and with other healthcare students, would be useful. Upon reflection, a fuller questionnaire with more detailed questions might also have been useful, but experience with surveys indicates that lengthy questionnaires are less likely to be fully completed. Selected in-depth interviews with a sub-sample of willing participants might also have yielded further interesting insights.

> *"One could argue that any study, whatever the size, contributes information, and therefore could be worthwhile and several small studies, pooled together in a meta-analysis are more generalisable than one big study" (Machin et al, 2007).*

5. Conclusions

Most participants showed a reasonable awareness of what dyslexia is. Almost all were aware of the supports made available to MSWD, and most thought these were fair. Many had witnessed negative comments being made about MSWD and some (a very small minority) admitted to bullying MSWD themselves. There remains work to be done in educating people about dyslexia and addressing some of the prejudices demonstrated – at least at a local level. Our findings contribute further data to the wider discussion on negative views towards, or bullying of, healthcare students/staff with dyslexia. Whilst this study reflects the case of a single UK medical school, our literature searches identified no other studies in this important area. These findings now need to be tested on a larger scale – e.g. involving multiple centres. Another area yet to be explored concerns the knowledge attitudes and practices of academic and clinical teachers towards MSWD and junior doctors with dyslexia.

> *"No research is ever quite complete. It is the glory of a good bit of work that it opens the way for something still better, and this repeatedly leads to its own eclipse" (Mervin Gordon).*

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